ICO2CHEM

From industrial CO_2 streams to added value chemicals

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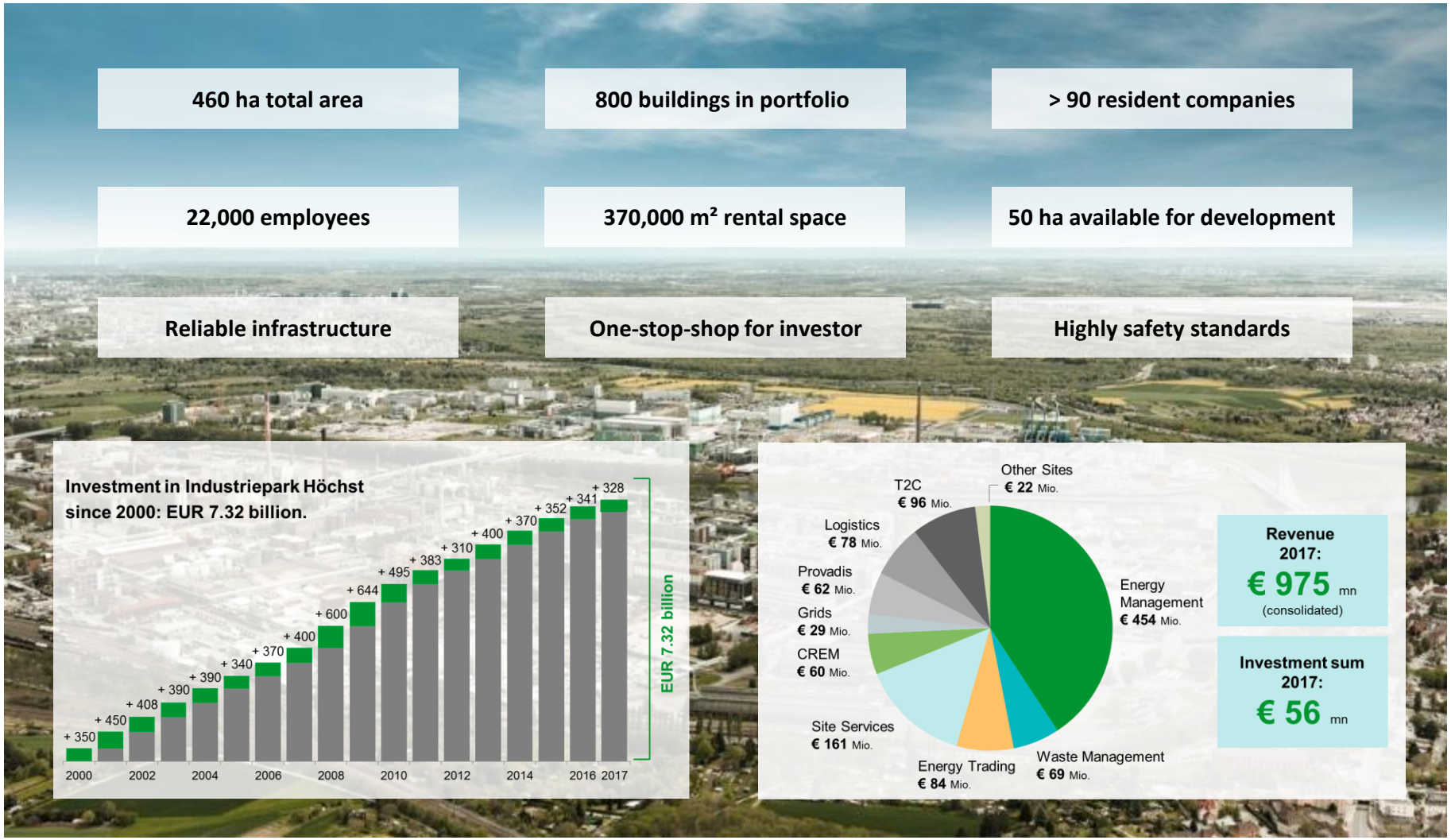
Infraserv Höchst operates the “Industriepark Höchst” – one of the most largest chemical and pharmaceutical sites in Europe



There is no better place than … the Industriepark Höchst

The champions of tomorrow set a sustainable course today!

Customers, tenants and investors benefit of a **highly competitive position**:

- Green platform for sustainable and ecological chemistry – upstream and downstream
- Combining commercial success with sustainability
- Resource-conserving “Verbundstruktur”
- High quality and cost efficient services
- Good investment conditions for R&D and production plants – cases pay off
- Pilot plant for CO_2 conversion
- New level of customer orientation
- High acceptance in society

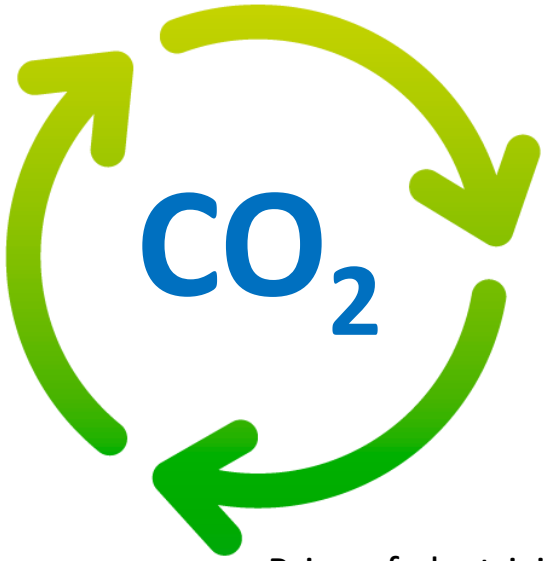
THE GREEN PLATFORM IS REALITY EVEN TODAY –
DESPITE MANY UNCERTAINTIES WE PURSUE OUR WAY TO SUSTAINABILITY

Why engaged in converting CO_2 into products ?

Sustainable business models

Legislation requiring CO_2 reduction

Rising pressure for new methodologies and technologies



Paris Climate Agreement

Respond early to regulatory pressure using own portfolio

Increase in price of CO_2 emissions

Targeted research into and development of sustainable fuels

Price of electricity from renewable sources will drop

MANAGING SUSTAINABLE DEVELOPMENT IS THE KEY TO LONG-TERM COMPETITIVENESS CREATING VALUE FOR BOTH THE CLIENTS AND SOCIETY

VTT Mobile Synthesis Unit

- MOBSU is a multipurpose synthesis unit for CO or CO_2 upgrading to energy carriers, fuels and chemicals
- Can be transported on-site where CO_2 emissions and energy are available
- Demonstration runs at Infraserv Höchst site in Frankfurt will start in spring 2019

ICO2CHEM concept

Infraserv Höchst
Industrial infrastructure integration and waste gases supply

CO_2 + H_2

Ineratec, VTT
Mobile synthesis unit RWGS+FT

VTT
Catalyst manufacturing

FT product

Altana
Product testing

White oils and wax emulsions as a raw material for chemical products

CO_2: from MEA-based Biogas upgrading plant

H_2: from Chlor-alkali electrolysis

Ineratec, Polito, VTT
Catalyst testing, Process modelling and Energy integration

PHS, Polito, VTT
TEA and LCA analysis

Infraserv Höchst provides:

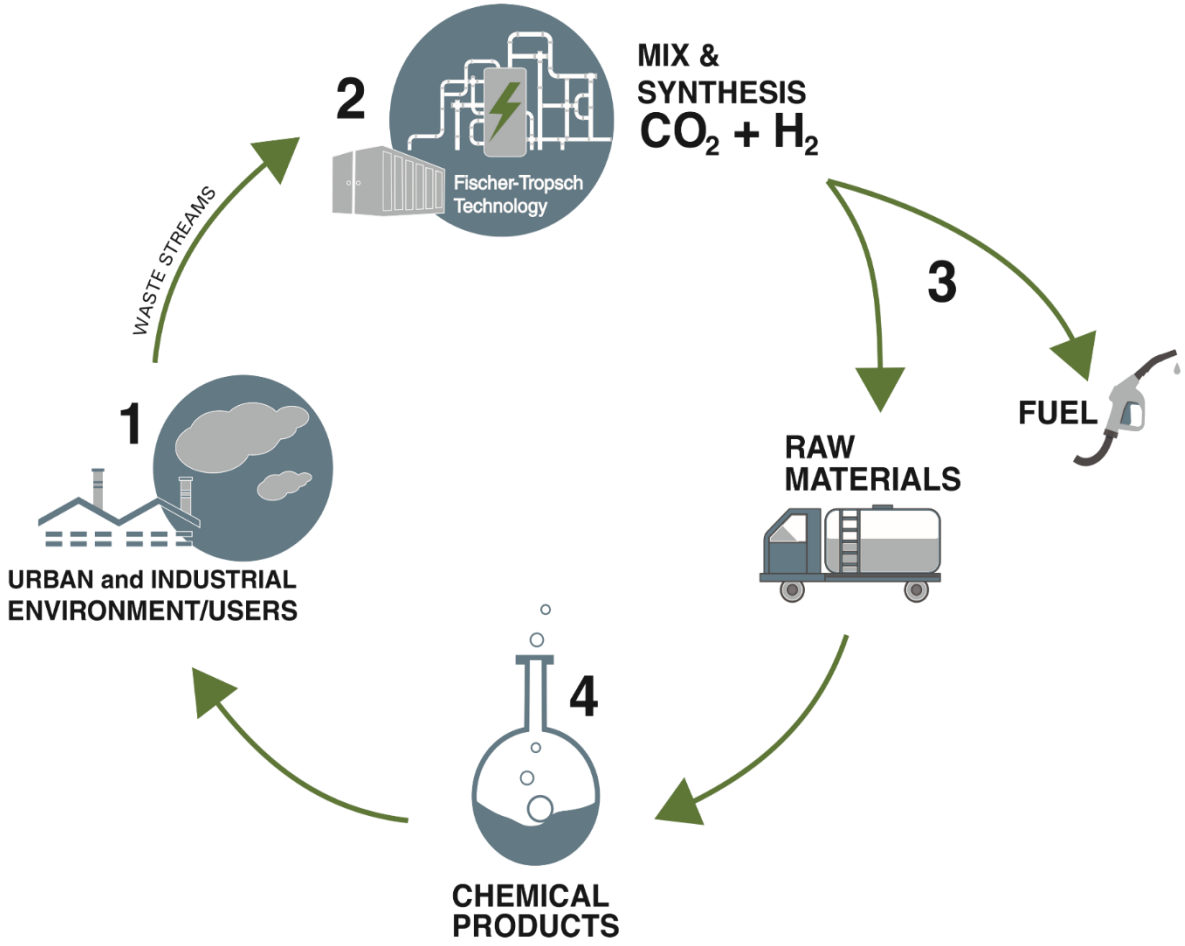
- an industrial infrastructure (incl. engineering, procurement and authority management)
- the required amount and quality of the feed gases CO_2 and H_2, energies and utilities

ICO2CHEM partners:

- VTT Finland
- INERATEC, Infraserv Höchst, ALTANA, Provadis Hochschule Germany
- Politecnico di Torino Italy

CO_2 emissions into chemicals

- Going towards the circular economy with carbon neutral emissions.
- ICO2CHEM demo plant transforms CO2 emissions from industrial emitters intovalue added chemicals
- Specific target: so-called white oils and high molecular weight waxes
- Demonstration runs will start in spring 2020



Products for applications

- ICO2CHEM develops a renewable option for white oils and high molecular weight waxes that are nowadays fossil-based only.
- Products can be introduced in different chemical markets:
  - surface additives, wax additives, defoamers and air release additives, adhesion promoters and coupling agents, viscosity reducers

Thank you!